

**§ 74.935 EIRP limitations.**

(a) The maximum EIRP of a main or booster station shall not exceed 33 dBW + 10log(X/6) dBW, where X is the actual bandwidth if other than 6 MHz, except as provided in paragraph (b) of this section.

(b) If a main or booster station sectorizes or otherwise uses one or more transmitting antennas with a non-omnidirectional horizontal plane radiation pattern, the maximum EIRP over a 6 MHz channel in dBW in a given direction shall be determined by the following formula:

$$\text{EIRP} = 33 \text{ dBW} + 10 \log(X/6) \text{ dBW} + 10 \log(360/\text{beamwidth}) \text{ dBW, where X is the channel width in MHz and } 10 \log(360/\text{beamwidth}) \leq 6 \text{ dB.}$$

Beamwidth is the total horizontal plane beamwidth of the individual transmitting antenna for the station or any sector measured at the half-power points.

(c) An increase in station EIRP, above currently-authorized or previously-proposed values, to the maximum values provided in paragraphs (a) and (b) of this section may be authorized, if an applicant demonstrates that the requested EIRP increase would not cause harmful interference to any authorized or previously-proposed, co-channel or adjacent channel station entitled to interference protection under the Commission's rules, or if an applicant demonstrates that:

(1) A station that must be protected from interference could compensate for interference by increasing its EIRP; and

(2) The interfered-with station may increase its own EIRP consistent with the rules and without causing harmful interference to any cochannel or adjacent channel main or booster station protected service area, response station hub or BTA/PSA, for which consent for the increased interference has not been obtained ; and

(3) The applicant requesting authorization of an EIRP increase agrees to pay all expenses associated with the increase in EIRP by the interfered-with station.

(d) For television transmission, the peak power of the accompanying aural signal must not exceed 10 percent of

the peak visual power of the transmitter. The Commission may order a reduction in aural signal power to diminish the potential for harmful interference.

(e) For main, booster and response stations utilizing digital emissions with non-uniform power spectral density (e.g. unfiltered QPSK), the power measured within any 100 kHz resolution bandwidth within the 6 MHz channel occupied by the non-uniform emission cannot exceed the power permitted within any 100 kHz resolution bandwidth within the 6 MHz channel if it were occupied by an emission with uniform power spectral density, i.e., if the maximum permissible power of a station utilizing a perfectly uniform power spectral density across a 6 MHz channel were 2000 watts EIRP, this would result in a maximum permissible power flux density for the station of  $2000/60 = 33.3$  watts EIRP per 100 kHz bandwidth. If a non-uniform emission were substituted at the station, station power would still be limited to a maximum of 33.3 watts EIRP within any 100 kHz segment of the 6 MHz channel, irrespective of the fact that this would result in a total 6 MHz channel power of less than 2000 watts EIRP.

[55 FR 46013, Oct. 31, 1990, as amended at 58 FR 44951, Aug. 25, 1993; 63 FR 65117, Nov. 25, 1998; 64 FR 63739, Nov. 22, 1999]

**§ 74.936 Emissions and bandwidth.**

(a) An ITFS station may employ amplitude modulation (C3F) for the transmission of the visual signal and frequency modulation (F3E) or (G3E) for the transmission of the aural signal when transmitting a standard analog television signal. Quadrature amplitude modulation (QAM), digital vestigial sideband modulation (VSB), quadrature phase shift key modulation (QPSK), code division multiple access (CDMA) and orthogonal frequency division multiplex (OFDM) emissions may be employed, subject to compliance with the policies set forth in the *Declaratory Ruling and Order*, 11 FCC Rcd 18839 (1996). Use of OFDM also is subject to the subsequently *Digital Declaratory Ruling and Order*, DA 99-554 (Mass Med. Bur. rel. Mar. 19, 1999). Other digital emissions may be added to those authorized above, including emissions